



Environmental Protection Agency

2200 Churchill Road, Springfield, Illinois 62706 I.I

MEMORANDUM

1/16/81
154238

DATE: January 16, 1981

TO: John Renkes, EAC, DAPC; Rauf Piskin, DLPC, MPM

FROM: W. Busch WBP

SUBJECT: Dead Creek Hazardous Materials Contamination

As a follow-up to our meeting on January 13, 1981 on the above subject, I thought I would outline the areas we discussed and present my opinions based on an assessment of the information available to date.

- I. Groundwater contamination: We all agree that there is groundwater contamination but there is no way to determine the aerial extent of hazardous levels of contamination with the data available as of this date. In my opinion, this contamination has existed for many years and will continue to persist for many years, even if all known fill areas were excavated and removed. I recommend that groundwater quality in the area be mapped and the local groundwater resource be "decommissioned" based on limiting parameter values for public water supply usage. Advisories should be issued to area well drillers, State and local health departments, State Water Survey, local governments and other potential users like Mobile Home Associations, Municipal League and Industrial Associations on the restrictions on use of the resource and the boundary of the affected area. A safety factor should be applied to the boundary setting process to allow for groundwater movement and expansion of the affected area. Continuous monitoring of the groundwater will have to be performed to track changes in the position of the affected groundwater mass. Advisories on the boundary of the "decommissioned" groundwaters will have to be updated accordingly.
- II. Mitigation of groundwater contamination: I can't give much encouragement to removal or reduction of pollutants in groundwater already affected, short of pumping to the surface, treating and reinjecting. Since we don't know the aerial extent of the affected resources this option is not a real alternative at this point. Removal, treatment, and reinjection is usually only a workable solution in highly localized groundwater contamination areas. Because of the long-standing nature of this problem, the groundwater effects are not likely to be localized.

III. Preventing further groundwater contamination:

- A. From contaminants in the creek bed: There are several things that can be done to reduce both surface and groundwater pollution potential from contaminated sediments in the creek bed. One step would be to excavate the areas of highest contamination and remove them to an approved hazardous waste fill site. Less contaminated areas can be treated to immobilize heavy metals and organics and then the entire ditch should be capped over with clean uncontaminated clay and contoured to a shallow waterway and seeded to produce a grassed waterway.
- B. Abandoned fill areas: We need to continue to map the areas of known and suspected hazardous material fill areas. John has already collected some excellent stereo aerial photos dating back to the thirties which have been very helpful. Hopefully the infrared scans and IR photos requested will give some additional information on old chemical burial sites. Because of some of the interviews made on scene and experiences of our drilling crews, I feel strongly that a very serious public hazard would be created by attempts to excavate and remove the unknown chemicals in these burial sites. The cost of such an operation based on the holes we have seen filled on the stereo photos back over the years in my opinion would add up to tens of millions of dollars. I think it will be years, if ever, before we know exactly what may have been buried by whom at each of the fill areas.

I think the best we can do for now is to map groundwater problems in the area and "decommission" the resource in adversely affected areas.

If a borehole could safely be drilled through the center of each fill (this is highly doubtful) it probably would be possible to maintain a cone of influence under each site with treatment of the water. The problem with this approach is that pumping and treatment would have to be maintained in perpetuity. A better approach (from the drilling safety standpoint) would be to encircle the outer boundary of each fill area with a connected network of wells to draw a curtain of influence and treat the water. Obviously, the cost of this alternative would be tremendous with O&M continuing forever.

- IV. Eliminating ground surface public exposure in the area: There apparently is little or no vapor emission except in the immediate area of highly contaminated areas of the ditch itself. The main public exposure hazard is by direct contact with contaminated sediment and materials in the ditch. The temporary snow fence has reduced this exposure hazard and the removal/capping procedures discussed in IIIA above will eliminate public contact exposure.